Deepwater Horizon / Mississippi Canyon 252 Oil Spill
Natural Resource Damage Assessment

TECHNICAL REPORT: Dead Birds Collected during Colony Sweep Activities

Prepared by the U.S. Department of the Interior, Fish and Wildlife Service

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Introduction

Nesting colonies, commonly referred to as "rookery islands," are a resource for colonial waterbird species in coastal ecosystems. In the northern Gulf of Mexico (nGOM), several breeding bird species use nearshore or offshore islands as rookeries between the months of February and August. These islands are typified by a variety of habitats including mangroves, shrubs, marsh, sandy beach, shell beach, and bare ground. This complexity of habitat, coupled with the absence of most mammalian predators, make these islands ideal breeding and foraging grounds for pelicans, wading birds, terns, gulls, and other bird species. Most rookery islands are used by a variety of birds with several different species nesting within close proximity to one another.

The *Deepwater Horizon*/Mississippi Canyon 252 (DWH) oil spill began in April 2010, and coincided with the nesting season for colonial waterbird species in the nGOM. Numerous active rookery islands were located within the impact area of the spill. Some of these islands were directly impacted by oil coming ashore or entering small water bodies on the island (Colibri and Ford 2015). The oiled habitats and the cleanup actions implemented in response adversely affected birds using these islands. In other cases, islands were not directly oiled, but had oil on the water surrounding or near the island where breeding birds forage.

Birds nesting on rookery islands are very sensitive to human disturbance. Human disturbance can cause birds to leave their nests for long periods of time, rendering the eggs or young susceptible to overheating and/or predation. Due to this sensitivity, access to the rookery islands by Wildlife Operations personnel was limited during much of summer 2010. Oiled birds were recovered from the water surrounding islands, but systematic searches on the islands by Wildlife Operations search teams were avoided to prevent disturbance to nesting birds. Similarly, no natural resource damage assessment studies were implemented on rookery islands while nesting was underway.

Birds Collected from Colonies

As nesting activity decreased in late July and early August, plans were developed to search the rookery islands for carcasses and intact, abandoned and/or unsuccessfully hatched eggs following cessation of nesting (USFWS, 2015a). The Houma Sector of Wildlife Operations and the Louisiana Department of Wildlife and Fisheries (LDWF)

selected certain rookery islands that were active in 2010 for targeted searches. Together, they developed colony search guidelines titled "Houma Sector Wildlife Operations Nesting Colony Search Guidelines" (Guidelines, Appendix A of USFWS, 2015a). These Guidelines outline survey protocols for the islands, as well as instructions on evidence collection.

Following nesting cessation at the end of August, 2010, Wildlife Operations and LDWF personnel conducted systematic searches of selected island rookeries. These searches were referred to as "colony sweeps." Team members were given a day of training on the guidelines and searches began on August 29, 2010. Both carcasses and intact eggs were collected by each team, as described in the guidelines, using similar methods as employed by Wildlife Operations during oil spill Response activities.

Colonial Bird Injury Quantification

Birds collected from colonies during the colony sweeps were not modeled in the Shoreline Deposition Model (SDM; Industrial Economics 2015) because these birds were only collected during a very limited time period (typically one day per colony) and could not be used to estimate daily carcass deposition rates across the period of time that the SDM was applied. Instead, the colony sweeps tabulated the minimum level of mortality that occurred on rookery islands.

All bird carcasses, regardless of age and species, were counted during colony sweeps to estimate additional quantifiable bird mortality within the colonies that was not captured using the SDM. Bird carcasses were tallied by species. When the species was unknown, the birds were distributed among known species as per the Department's species prorating approach (USFWS, 2015b), using pro-rating values generated from only the colony sweep bird records that had species identified.

Results

Using the methods described above, an additional 636 dead birds were collected during "colony sweep" activities from August 28, 2010 into September. Species distributions are provided in Table 1. This number represents the minimum number of birds that were killed in the portions of nesting colonies that were not modeled using the SDM.

In addition to the 636 birds collected during the colony sweeps, a number of birds collected from or near colonies throughout the summer of 2010 had sufficient search effort information associated with them to allow these birds to be included in the SDM modeling effort. Using the SDM, it was estimated that between 13,296 and 19,955 birds likely associated with colonies were killed as a result of the DWH spill. Despite these two complimentary efforts, the timing of the DWH oil spill coincided with the Gulf of Mexico colonial nesting bird season when thousands of nesting birds could have been exposed to oil or response activities. Because of this timing, the Trustees acknowledge that the number of carcasses collected and/or modeled from these two efforts represent only a portion of the overall number of dead birds associated with colonies (Baker et al. 2015).

Table 1. Additional dead birds collected during "colony sweeps" in the coastal, northern Gulf of Mexico (Atchafalaya Bay, LA, to Apalachicola Bay, FL) between August 28 and September 30, 2010.

Species	***Dead***
Brown Pelican	156
Laughing Gull	273
Ring-billed Gull	1
Royal Tern	25
Sandwich Tern	9
Forster's Tern	5
Least Tern	7
Black Skimmer	125
American Oystercatcher	1
Black-necked Stilt	1
Great Egret	1
Snowy Egret	7
Cattle Egret	1
Tricolored Heron	11
Roseate Spoonbills	3
Great Blue Heron	1
Little Blue Heron	3
White Ibis	1
Clapper Rail	2
American Coot	1
Willet	1
Northern Gannet	1
TOTALS	**636***

* There were 637 birds collected during the colony sweep activities. One bobwhite quail was excluded from the tally above, because the Department excluded this species as one not likely harmed by the DWH oil spill.

References

Baker, D.T., Huisenga, M., Wallace, B. 2015. *Deepwater Horizon* Natural Resource Damage Assessment Technical Report: Evaluation of potential exposures and injuries to colonial birds in coastal Louisiana caused by the 2010 *Deepwater Horizon* Oil Spill. Prepared for Louisiana Coastal Protection and Restoration Authority. August 31, 2015.

Colibri Ecological Consulting and R.G. Ford Consulting Company. 2015. Analysis of 2010-2013 Photographic Census Data From Waterbird Breeding Colonies in the Vicinity of the Deepwater Horizon Oil Spill (Contract No, F13PC000371). 41 p. plus appendix.

Industrial Economics, Incorporated (IEc). 2015. *Deepwater Horizon*/Mississippi Canyon Oil Spill Natural Resource Damage Assessment Technical Report: Quantification of Nearshore Avian Mortality using the Shoreline Deposition Model and Lost at Sea Factor. Prepared for the Deepwater Horizon Natural Resource Damage Assessment and Restoration Program, U.S. Fish and Wildlife Service, U.S. Department of the Interior. September 1, 2015.

U.S. Fish and Wildlife Service. 2015a. Draft Memorandum for Assessment Activity: Data Evaluation Summary of 2010 End of Season Nesting Colony Searches with Appendix A. Houma Sector Wildlife Operations Nesting Colony Search Guidelines and Appendix B. Nesting Colony Searches Data Evaluation.

U.S. Fish and Wildlife Service. 2015b. Allocating "Unidentified" Birds to Species for Purposes of Translating Shoreline Deposition Model and "Excluded Regions" Mortality Estimates into Species-Specific Injury Quantifications.

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